

**REMARKS**

Claims 34-56 and 58-60 are pending in this application. By this Amendment, claims 34, 35, 39-42, 44, 47-49, 54 and 56 are amended. Claims 61 and 63 are canceled without prejudice to, or disclaimer of, the subject matter that each of these claims recites. Reconsideration of the application based on the above amendments and the following remarks is respectfully requested.

The specification is objected as noted in the Office Action. In the Office Action it is asserted that “supplying fluid simultaneously to both the extend and retract chambers of a double-acting differential actuators at substantially the same pressure” is not correct. Applicant’s submit that the specification is accurate because although, the fluid is supplied to each of the extend and retract chambers via for example fluid conduits 12-14 of FIG. 4 that does not require that the fluid enters the respective the extend and retract chambers, merely that the extend and retract chambers are connected to the supply of fluid at substantially the same pressure simultaneously. Withdrawal of the objection to the specification is respectfully requested.

**Rejection under 35 U.S.C. §112, second paragraph**

Claims 34-56, 58-61 and 63 are rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite.

In the Office Action it is asserted that “a fluid supply means arranged to supply pressurized fluid to both the extend and retract chambers, to maintain the pressurized fluid in the extend and retract chambers at substantially the same pressure,” as recited in claims 34 and 47 is unclear.

The above features recited in claims 34 and 47 are not unclear, because even when the extend and retract chambers are supplied with the same pressure, a force exists on the actuator piston because of the difference in areas of the piston facing the fluid in the extend and retract chambers. Thus, the force on the piston can be changed merely by changing the pressure in both the he extend and retract chambers by equal

amounts (see, *e.g.*, page 32, line 23-page 33, line 25 of the specification).

Accordingly, reconsideration and withdrawal of the rejection of claims 34-56, 58-61 and 63 under 35 U.S.C. §112, second paragraph, are respectfully requested.

### **Rejections under 35 U.S.C. §102**

Claims 34-45, 47-56, 61 and 63 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent Application Publication No. 2003/0097837 to Hiraki et al. (hereinafter "Hiraki"). This rejection is respectfully traversed.

Claim 34 recites, among other features, to maintain a pressure of the pressurized fluid in the extend chamber to be substantially the same as a pressure of the pressurized fluid in the retract chamber and the pressure of the pressurized fluid based on a difference in area between an area of the actuator piston facing into the retract chamber and an area of the actuator piston facing into the extend chamber and a load applied to the actuator in use. Claim 47 recites similar features as method steps. Hiraki teaches a cylinder with a first oil pressure PS and second oil pressure PL. Hiraki does not teach to maintain a pressure of the pressurized fluid in the extend chamber to be substantially the same as a pressure of the pressurized fluid in the retract chamber and the pressure of the pressurized fluid based on a difference in area between an area of the actuator piston facing into the retract chamber and an area of the actuator piston facing into the extend chamber and a load applied to the actuator in use because Hiraki teaches at, *e.g.* paragraph [0016] the first and second hydraulic pumps have a relation of approximately " $A1:A2=Q1:(Q1+Q2)$ ", where A1 is a piston pressure receiving area of the head side pressure receiving chamber, A2 is a piston pressure receiving area of the bottom side pressure receiving chamber, Q1 is a discharge amount per unit time of the first hydraulic pump, and Q2 is a discharge amount per unit time of the second hydraulic pump. Therefore, Hiraki teaches merely a flow rate not a pressure relation or load relation to the piston pressure areas.

Moreover, Hiraki teaches, at, *e.g.*, paragraph [0122] the pumps P1 and P2 connected to the motor MA to operate simultaneously, P1 removing fluid from the 7S and P1 and P2 pressurizing 7L. Thus, the motor MA and pumps P1 and P2 cannot maintain

the same pressure in 7L and 7S and maintain the pressure based on a load because the two functions, the pressure in 7L and 7S and the difference in pressure between 7L and 7S are linked by the turning of motor MA. Changing the pressure in 7S and 7L using P1 and P2 will always change the pressure difference between 7S and 7L. Thus, Hiraki is not capable of the above features recited in claims 34 and 47.

For at least the foregoing reasons, Hiraki cannot reasonably be considered to teach the combinations of all of the features positively recited in claims 34 and 47. Further, Hiraki cannot reasonably be considered to teach, the combinations of all of the features recited in claims 35-45 and 48-56 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 34-45 and 47-56 under 35 U.S.C. §102(b) as being anticipated by Hiraki are respectfully requested.

Claims 34-45, 47-56, 61 and 63 are rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 4,928,487 to Nikolaus. This rejection is respectfully traversed.

As noted above, claim 34 recites, among other features, to maintain a pressure of the pressurized fluid in the extend chamber to be substantially the same as a pressure of the pressurized fluid in the retract chamber and the pressure of the pressurized fluid based on a difference in area between an area of the actuator piston facing into the retract chamber and an area of the actuator piston facing into the extend chamber and a load applied to the actuator in use. Claim 47 recites similar features as method steps. As noted in the Office Action, Nikolaus teaches at, *e.g.* col. 4, lines 45-51 assuming that the relation between the areas of the piston 18 is 1:2, the power exercised in the direction of arrow 19 decreases about 50%, thus, Nikolaus teaches only that the power decreases about 50%. Nikolaus does not teach the pressure in the cylinder spaces 11, 13 maintained to be the same, or the pressure of the fluid based on a relation between the areas of the piston 18 or a load.

Moreover, Nikolaus teaches at, *e.g.*, col. 3, lines 63-65, a predetermined constant system pressure P0. Thus, if the pressure is predetermined the pressure in line 12 of

Nikolaus which is also applied to cylinder space 11 cannot be based on a difference in area between an area of the actuator piston facing into the retract chamber and an area of the actuator piston facing into the extend chamber and a load applied to the actuator in use, because the pressure is constant and predetermined. Thus, Nikolaus is not capable of the above features recited in claims 34 and 47.

For at least the foregoing reasons, Nikolaus cannot reasonably be considered to teach the combinations of all of the features positively recited in claims 34 and 47. Further, Nikolaus cannot reasonably be considered to teach, the combinations of all of the features recited in claims 35-45 and 48-56 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 34-45 and 47-56 under 35 U.S.C. §102(b) as being anticipated by Nikolaus are respectfully requested.

### **Rejections under 35 U.S.C. §103**

Claim 46 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hiraki in view of Nikolaus. This rejection is respectfully traversed.

The Office Action concedes that Hiraki does not teach a fluid supply operable to be in fluid communication with and to supply pressurized fluid to said fluid vessel. The Office Action asserts that Nikolaus remedies these shortfalls of Hiraki. As argued above, Hiraki cannot reasonably be considered to have suggested the combination of all of the features recited in claim 34. Nikolaus, as applied to claim 34, does not remedy the above-discussed shortfalls of Hiraki. Therefore, the combination of Hiraki with Nikolaus cannot reasonably be considered to have suggested the combination of all of the features recited in claim 46 for at least the dependence of this claim on an allowable base claim, as well as for the separately patentable subject matter that this claim recites.

Accordingly, reconsideration and withdrawal of the rejection of claim 46 under 35 U.S.C. 103(a) as being unpatentable over Hiraki in view of Nikolaus are respectfully requested.

Claims 34-45, 47-56, 58-61 and 63 are rejected under 35 U.S.C. §103(a) as being unpatentable over Applicant's alleged admitted prior art in view of Hiraki and U.S. Patent No. 6,520,731 to MacLeod. This rejection is respectfully traversed.

The Office Action concedes that Applicant's alleged admitted prior art does not teach the actuator includes a piston in an actuator chamber defining an extend chamber and a retract chamber such that the actuator rod extends through the retract chamber, and a fluid supply means including a first reversible pump arranged to reversibly transfer fluid between the extend and retract chamber and a second reversible pump arranged to transfer fluid between the extend chamber and a hydraulic accumulator. The Office Action asserts that Hiraki and MacLeod remedies these shortfalls of Applicant's alleged admitted prior art. The analysis of the Office Action fails for the following reason.

As noted above, Claim 34 recites, among other features, to maintain a pressure of the pressurized fluid in the extend chamber to be substantially the same as a pressure of the pressurized fluid in the retract chamber and the pressure of the pressurized fluid based on a difference in area between an area of the actuator piston facing into the retract chamber and an area of the actuator piston facing into the extend chamber and a load applied to the actuator in use. Claim 47 recites similar features as method steps.

As argued above Hiraki does not teach, and would not have suggested the above features.

Applicant's alleged admitted prior art and MacLeod, as applied to claims 34 and 47, do not remedy these shortfalls of Hiraki.

For at least the foregoing reasons, the combination of Applicant's alleged admitted prior art with Hiraki and MacLeod cannot reasonably be considered to have suggested the combinations of all of the features recited in claims 34 and 47. Further, the combination of Applicant's alleged admitted prior art with Hiraki and MacLeod cannot reasonably be considered to have suggested the combinations of all of the features recited in claims 35-45, 48-56 and 58-60 for at least the dependence of these claims on allowable base claims, as well as for the separately patentable subject matter that each of these claims recites.

Accordingly, reconsideration and withdrawal of the rejection of claims 34-45, 47-56 and 58-60 under 35 U.S.C. 103(a) as being unpatentable over Applicant's alleged

admitted prior art in view of Hiraki and MacLeod are respectfully requested.

**Conclusion**

All objections and rejections having been addressed, it is respectfully submitted that the present application should be in condition for allowance and a Notice to that effect is earnestly solicited.

Early issuance of a Notice of Allowance is courteously solicited.

The Examiner is invited to telephone the undersigned, Applicant's attorney of record, to facilitate advancement of the present application.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

Respectfully submitted,

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